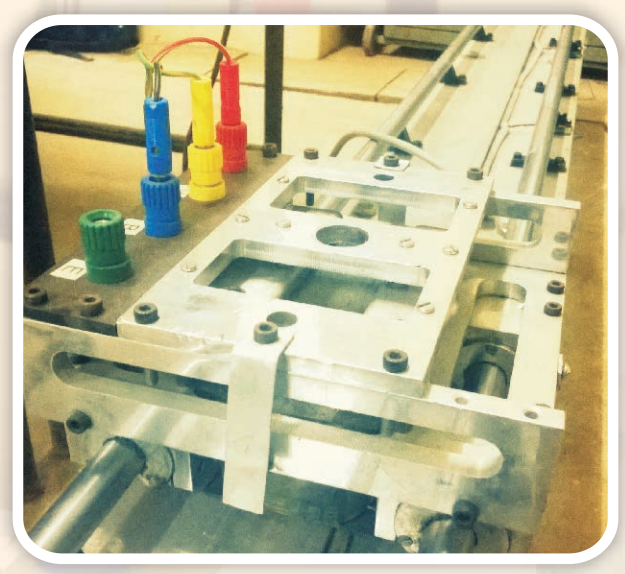

Eastern Economy Edition

SPECIAL ELECTRICAL MACHINES

E.G. Janardanan

PHI

Special Electrical Machines

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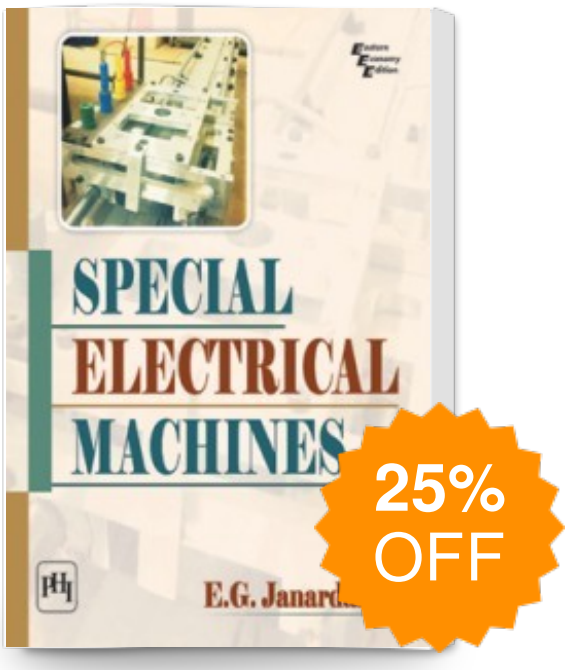
Preface

Conventional rotating electrical machines like direct current machines, induction machines and synchronous machines are mainly used for bulk energy conversion. Extensive studies were conducted on these machines and massive information is available in documented form. There are several other types of electrical machines such as stepper motor, switched reluctance motor, permanent magnet DC and AC motors, brushless DC motors, linear electric machines, permanent magnet axial flux machines, etc. which were invented for specific applications, including control applications. Electrical machines developed for specific applications are called special electrical machines. Till 1960 their applications were limited due to the cost and complexity of controllers which were essential for full utilisation of their potential. With the rapid developments in semiconductor technology and digital control systems, during the past few decades, the implementation of fast and accurate control schemes could be realised. At present a large number of institutions and industries are actively involved in research for further improvement in construction and performance of special electrical machines.

A good number of universities included the subject 'Special Electrical Machines' as an elective for undergraduate and postgraduate courses in their curriculum. Even though it is late, it is better to introduce this as a core subject. Unfortunately many institutions and departments are reluctant to offer this elective due to the unavailability of a proper textbook that covers the entire syllabus. There are some good books published by foreign publishers and very few written by Indian authors. Most of these books cover only few topics and the treatment of the subject is of high level and research oriented. The sincere request from my students and colleague motivated me to develop a textbook that covers the syllabus of various Indian universities. I tried to keep a student-friendly approach in the presentation of the subject. Many complicated mathematical analysis were made simple.

E.G. JANARDANAN

Special Electrical Machines



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